

## COMPUTER-ASSISTED HIP REPLACEMENT SURGERY

### ABSTRACT

An apparatus for obtaining an axis of an intramedullary canal of an exposed bone with a position tracking system in computer-assisted surgery, comprising a detectable device trackable in space for position and orientation. A stem portion is secured to the detectable device so as to be tracked for position and orientation. The stem portion has a leading end insertable in an intramedullary canal of the bone through an opening in the bone, and is adapted to be handled by a following end thereof. A tip portion is provided at the leading end of the stem portion. The tip portion is positionable in a determined way with respect to a surface of the intramedullary canal, such that reference points with respect to the intramedullary canal are calculable as a function of the position and orientation of the detectable device. The reference points are related to define an axis of the intramedullary canal. A method is provided for digitizing the intramedullary canal axis.